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THE JAPANESE HONEYSUCKLE IN THE EASTERN UNITED STATES.

BY E. F. ANDREWS

The rapidity with which introduced weeds can multiply and take possession of new territory has been repeatedly demonstrated by such examples as the Russian thistle (*Salsola pestifer*), bitterweed (*Helenium tenuifolium*) and the Sida (*S. Spinosa* and *S. rhombifolia*)—plants which have become such common pests in certain parts of our country. As a general thing these unwelcome intruders belong to the class of herbaceous annuals and biennials, whose frequent succession of new generations, with the opportunities for seed production and distribution which this affords, makes them much more efficient travelers than the slower-growing woody shrubs and vines.

A notable exception to this rule, however, is furnished by the Japan honeysuckle (*Lonicera japonica*), an exotic from Asia, which I remember to have known in my youth only as a carefully cultivated and highly prized ornamental plant, twining about the piazzas of the old plantation mansions and covering the "summer houses"—pergolas, they would be called now—in old-fashioned southern gardens. The flowers are very fragrant and showy, and it was a profuse bloomer under cultivation, but since it has run wild and taken on the weedy habit, it has to a large extent given up flowering, and propagates chiefly by vegetative means. Wherever a shoot touches the ground it strikes root and then sends forth a numerous progeny of young shoots to repeat the process. The prostrate stems and those in contact with the soil, even on high banks and ledges, where there

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is plenty of light, never, or very rarely produce flowers, but expend their surplus energy in adding to the network of tangled cords that covers the ground wherever this ruthless invader gets a foot hold. It will climb as high as heaven if it can find anything to lean on, converting the wooded areas in the moist river bottoms into an impenetrable jungle with its tangled cords of interlacing vines; or if forced to accept a humbler position, crawling with equal facility over the gullied slopes of arid hill-



F:G. 1.—Japanese honeysuckle covering the side of a railroad cut near Rome, Ga. The white patches in the foreground are not snow, but naked portions of the very sterile yellow clay soil.

sides or along the borders of dusty roads. This faculty might be turned to good account in stopping washes and covering unsightly clay banks, though its utility for such purposes seems never to have been tested. But while accommodating itself readily to almost any conditions, it shows a marked preference for moist woodlands and the borders of streams, and as its presence in such places does not interfere with the crops, or threaten any direct pecuniary loss, it has not attracted the attention of either the economist or the agriculturist.

But to the botanist engaged in any kind of field work this foreign immigrant is a most undesirable accession to our plant population. It infests his favorite hunting grounds and besets his steps with a tanglefoot of snares even more exasperating than the barbed wire fences, sometimes forcing him—and more especially *her*—to cut short such explorations. But the chief indictment against it is the ruthlessness with which it is overrunning and destroying our native plants wherever it comes in competition with them; and it is no uncommon thing to see acres upon acres of brushwood and haw thickets, sometimes including trees of considerable size, buried under the rank growth of this aggressive invader. As it has no way of climbing except by coiling around a support, which is a rather tedious process in the case of large stems; it can reach the crown of high-branching trees only by climbing upon the under brush of shrubs and young shoots until it comes in contact with some overhanging bough—and then it has a free right-of-way. It also utilizes the stems and branches of other climbers that have already made good their ascent—trumpet vine, catbriars, grape, Virginia creeper, and the like, not excepting those of its own kind. As the stems of both the twiner and its support grow larger, the tension often becomes so great that the coils are tightened like a noose, and become so deeply imbedded in the supporting stem as to give it the appearance of a huge corkscrew, and unless themselves broken or loosened by the strain, may cause the death of the parts above. More frequently however, it kills by smothering its victims under a dense network of interlacing cords, commonly from 3 to 6 mm. thick, loosely twisted together. I have counted as many as 27 strands of all sizes, from 1 to 10 mm. thick, twined into one of these living ropes. A single stem is rarely more than 1 or 2 cm. (about $\frac{3}{4}$ of an inch) thick, though in one instance I have seen a single honeysuckle vine 18 cm. (7 in.) in girth, smothering a wild plum tree (*P. nigra*) 1.5 dm. (6 in.) in diameter. It began by gripping a shoot from the base of the plum, in a spiral of 4 rings which have been drawn so tight by the continued growth of both stems that the honeysuckle, the more elastic of the two, has been flattened out like a piece of tape. As for the plum

shoot, it is now dead, and from the end of the stub the climber has reached out to the main stem and spread over the crown a network of luxuriant branches under which the tree is being slowly smothered to death.

This sort of piracy is no uncommon thing in the vegetable world, any more than in our own, but what surprised me in this case was the unusual size of the climbing stem. I took it for a grape vine at first, as the bark is fibrous like that of the grape, and it was not until I had plucked off leafy twigs actually growing out of it that I could feel sure they really belonged there and were not merely "hangers-on" of a hanger on. The bark is of a lighter color and softer texture than that of the grape, and also more easily detached.

On this lusty vine only one flowering sprig, with but two berries, was found. This was on November 7, 1917, and is the second specimen of fruit recorded in my notes for that year, though others may have been observed without being mentioned, and others still may have escaped notice on account of the difficulty of distinguishing them among the dark, evergreen foliage. But while all this may be so, I have kept up such a constant lookout for the fruiting sprays, and their scarcity is the subject of such frequent comment in my notes that although their presence may sometimes be overlooked, this is not a satisfactory explanation, and the fact remains that the production of fruit (and consequently of seed) is much less than would be expected of so prolific a stock. But while the flowers appear to be highly specialized for insect pollination, they seem, in the wild state, to have no set time for blooming. Even in spring it is unusual to see a honeysuckle vine loaded with flowers like the jessamines and clematis, but it continues to blossom sporadically throughout the greater part of the year (in this latitude, from April to December) producing a few sprays here and there—hardly more in May than in October. In this way, many of the late bloomers may "waste their sweetness on the desert air" so far as pollination and the perfecting of fruit is concerned.

But the most puzzling thing about this successful invader is how it has managed, with such imperfect provision for transpor-

tation over long distances, to spread over so vast a territory within the memory of persons still living. No mention is made of it in either "Chapman's Flora of the Southern States" (1884) or in the VIth edition of Gray's Manual (1889), and it was not until about this period that my own attention was aroused by the discovery that it was beginning to run wild in low, damp places around Macon, Ga. Since then it has spread over practically the whole of the Eastern States, from the Gulf of Mexico to the estuary of the Hudson, making itself equally at home in the low hammocks of the Coastal Plain, on the old red hills of the Piedmont region, on the stony ramparts of the Lookout Plateau, and onward for a thousand miles up the great Appalachian Valley. A writer from Texas in the *American Botanist* (Vol. 24, p. 5) mentions it as having "established itself in the brush around dwellings" in some parts of that State, and Dr. R. M. Harper also writes me that he has seen it growing along roadsides in Hingham, Mass.

The ease with which it propagates by runners will account for the rapid dispersal of the species locally, but for those distant migrations by which it has spread from Texas to New England and from the mountains to the sea, some more expeditious means of transportation is needed. The dissemination of seed through the agency of birds is the most natural means that suggests itself, and is probably the one employed, though the adaptation for this purpose is not very apparent. The berries, in addition to their infrequency, are "conspicuously" inconspicuous, being small, black, and sessile, or nearly so, in the axils of the dark green leaves, where it is difficult to see how they could attract attention even in a real "bird's-eye view." The small nutlets are embedded in a mucilaginous pulp like that of the mistletoe, but of a dark greenish color and an insipid, bittersweet taste, that would not seem likely to tempt a fastidious palate. It is not unlikely, however, that this pulp may play an important part in the distribution of seed, by sticking to the feet of birds and insects, and being carried about from place to place like the mistletoe. The plant is spread to some extent, even locally, by seed, and I have occasionally found a new colony forming in

places 200 meters (about 620 ft.) or more, from any others of the species which could have given rise to it. The seedling starts by sending out a number of prostrate branches which creep along on the ground sending out runners of their own in every direction until they find something to climb on, and in an incredibly short time will overrun everything that stands in their way.

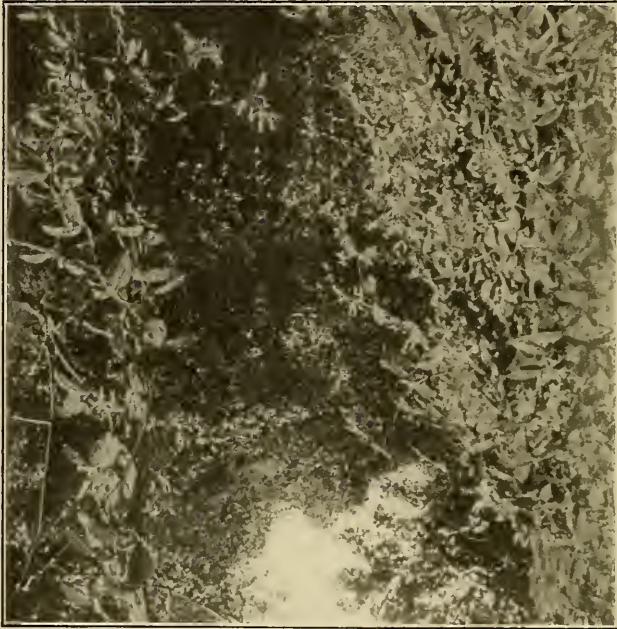


FIG. 2 —A honeysuckle jungle on the borders of a small stream in Wilkes County, Ga.

But after all has been said, the paucity of fruit in a plant so widely distributed has always been a puzzle to me, and as the flowers are dependent upon insect fertilization, I have sometimes wondered whether this might not be a case like that of the Smyrna figs, in which a particular insect partner was needed to insure pollination. The most reasonable explanation, however, seems to be that wherever the honeysuckle can propagate itself vegetatively, it employs that method in preference to wasting its energies in the more exhausting and expensive process of seed

production. In other words, nature, here, is economizing effort and following the line of least resistance. This accords with the fact that prostrate and low climbing branches do not bloom and that fruit and flowers are found only in positions where the opportunity for vegetative multiplication is restricted or wanting. In fact, the most remarkable crop of both fruit and flowers that I remember ever to have seen, was on a vine climbing over a wire fence between a cotton field and a potato patch, where the farmers were giving it such a hard fight that it had no chance to spread over the ground and was obliged to find some other outlet for its vital energy.

ROME, GEORGIA

VARIATIONS IN THE FLOWERS OF *ERYTHRONIUM PROPULLANS* GRAY

BY C. O. ROSENDAHL

Several species of the genus *Erythronium* are characterized by certain structural peculiarities of the flowers chief of which is the marked heteromorphism of the stamens. This has been demonstrated in two of our common eastern species, *E. albidum* and *E. americanum* by Meads* and Graff† and in a number of western and mid-western species by Pickett.‡ Among those studied by Pickett is *E. propullans*, a somewhat peculiar species which, so far as definitely known, is limited in its distribution to a small geographical area of southeastern Minnesota. In this restricted area it has been found only in a few places in the valleys of the Cannon and the Zumbro rivers, where it grows on wooded, alluvial bottomlands.

As a result of the very limited distribution of the species there are comparatively few specimens of *E. propullans* in the herbaria of the country and Pickett states that his observations on it were

* Meads, M. E. The Range of Variation in Species of *Erythronium*. Botanical Gazette 18: 134-138. 1893.

† Graff, Paul W. The Stamens in *Erythronium Americanum*. Torreyia 16: 180-182. 1916.

‡ Pickett, F. L. The length of *Erythronium* Stamens. Torreyia 17: 58-60. 1917.